Stoddard, Jamey

From: Heer, Marcia L POA <Marcia.L.Heer@usace.army.mil>
Sent: Wednesday, March 20, 2013 11:01 AM
To: Stoddard, Jamey
Cc: McCoy, Shane POA; LaCroix, Matthew; Edmond, Lorraine
Subject: RE: Chuitna Alternative - Mine Design to Avoid Stream Disturbance (UNCLASSIFIED)

Categories: EZ Record - Shared

Classification: UNCLASSIFIED
Caveats: NONE

Thanks all for your help on this, I really appreciate your input.

-----Original Message-----
From: Stoddard, Jamey [mailto:Stoddard.Jamey@epa.gov]
Sent: Tuesday, March 19, 2013 2:49 PM
To: Heer, Marcia L POA
Cc: McCoy, Shane POA; Morgan, Shannon R POA; 'Randall, Valerie'; LaCroix, Matthew; Edmond, Lorraine
Subject: RE: Chuitna Alternative - Mine Design to Avoid Stream Disturbance (UNCLASSIFIED)

Marcia:

Thanks for the discussion last week regarding this issue. As requested, here is a summary of our preliminary thoughts on the alternative mine design with regards to: 1) whether or not there is an environmental benefit to retaining the stream beds within LMU_1 when compared with PacRim's proposal of mining the entire lease area; and 2) whether or not the alternative should be carried forward for further consideration as a reasonable alternative in the NEPA analysis.

Given the limited information provided we can't make any definitive or conclusive assertions at this point re: the level or degree of environmental benefit of a stream avoidance/smaller mine alternative vs. PacRim's proposal to mine through the entire lease area. However, as we discussed, we do have some preliminary thoughts on the issue, which are summarized below.

Worst Case Assumption-

One thing we noticed in the documentation provided is that PacRim appears to be going with a "worst case" (from the company's perspective) stream avoidance alternative, wherein it is assumed that all stream segments would have to be avoided all the time. This clearly represents the most logistically and financially challenging scenario from a mine engineering/economics perspective, and is therefore not very desirable to PacRim. Other options to consider for alternatives could be: 1) sequentially mining through and restoring portions of the streams, thus limiting the time when any given reach was removed and allowing for testing and refinement of the reconstruction process; 2) avoid certain segments/reaches of the streams where there are sensitive/productive spawning areas/habitat, etc. I understand that some of these alternatives are also being considered and discussed with PacRim, and we welcome those discussions.

Assumption of Success in Stream Re-creation-

I think the fundamental issue here is PacRim's assertion that the streams within LMU_1 can be re-created to match pre-mining form and function. It appears the primary reason PacRim is asserting that a stream avoidance alternative provides no environmental benefit when compared with their proposal is: 1) under both alternatives the streams will be dewatered over a spatial and temporal scale that effectively eliminates salmonid habitat within those dewatered reaches during and immediately post mine; and 2) post-restoration and closure, baseflow will be restored and the streams will return to pre-mining form and function. In short, PacRim is basically asserting that, "if we are removing the salmonid habitat function

regardless, what does it matter if the form is also removed so long as the form and function are eventually returned post-mining and reclamation." The issue we have with this logic is the fundamental assumption being made that the form and function of the system can be "re-created" post-mining and reclamation. The science for stream creation is simply not well enough advanced to be able to make that assertion definitively. Re-creating streams using Natural Channel Design and planform geometry has not been shown to re-establish function. The 2008 Mitigation Final Rule acknowledges this difficulty and discourages stream establishment and re-establishment as compensatory mitigation. A 2013 article in the Journal of the American Water Resources Association entitled "An Assessment of U.S. Stream Compensatory Mitigation Policy: Necessary Changes to Protect Ecosystem Functions and Services" bluntly states that, "Current compensatory mitigation policy will not protect stream ecosystem functions and services." Currently, we are unaware of any successful stream re-creation project on the scale that PacRim is proposing. If stream re-creation has ever been done successfully at this scale we would be interested to see where and how. If not, the SEIS will need to be extremely clear that the results of reclamation/recovery are highly uncertain, with all of the risk being on the side of the environment.

Environmental Benefit-

As discussed above, given the limited information we have it is difficult at this point to make any conclusive or definitive statement regarding the level of environmental benefit of a stream avoidance alternative. However, we do offer the following preliminary thoughts.

Matthew, Lorraine, and I all seem to be on the same page that at face value retaining the form of the streams within LMU_1 would appear to provide an environmental benefit when compared with PacRim's proposal of mining the entire lease area, including the removal of the streams/tributaries within LMU_1 during life-of-mine. While lowering the water table due to dewatering the mine area would likely remove some salmonid habitat regardless of whether or not the streams are left in place (as is asserted in the documentation provided), it would appear that keeping the form of those streams intact would likely provide some benefit with re: to restoring function back to the system during reclamation. The alluvial materials within the sub-basin were laid down by hydraulic processes over millennia (not by heavy equipment over decades). Maintaining the integrity of those alluvial deposits and their associated hydraulic conductivity and interrelating geomorphologic features would appear to provide a environmental benefit as PacRim would not have to try and recreate the streams and their relationship(s) with the underlying aquifer/groundwater (the success of which, as discussed above, is highly uncertain).

We understand that there are a few alternatives currently being discussed between the Corps and PacRim, including stream avoidance. If avoiding at least some of the streams is not practicable (and the materials provided thus far by PacRim do not establish that), then the practicability of sequentially mining and reconstructing steams should be evaluated. If sequential mining is practicable, that would be another potential alternative for consideration in the SEIS and would be considered a minimization measure. The streams would still need to be reconstructed, but the functional performance of the new channels could be evaluated long before the end of the mine life, with time for adaptive management and adjustments in design and implementation.

Reasonable Alternative for Consideration in SEIS-

Under NEPA agencies are to consider "reasonable" alternatives to the proposed action, including the no action alternative. The information provided does not appear to render a stream avoidance alternative unreasonable. Question 2a of CEQs 40 Most Asked Questions Concerning NEPA states that, "reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant." The documentation provided clearly shows that a stream avoidance alternative (even the "worst case" scenario outlined) is feasible from a technical and economic standpoint. While more expensive and logistically challenging, it is feasible. We would argue that the alternative is also practical, and therefore reasonable under the definition provided by CEQ.

In addition, with re: to PacRim's assertion in their 3/8/13 letter that a small mine alternative is impractical because of the perceived conflict with SMCRA and land ownership rights which emphasize maximum resource recovery: Setting aside the notion of practicability in the context of 404, even if it was concluded that SMCRA and/or land ownership rights preclude a smaller mine alternative (which we are not taking a position on at this time), CEQ guidance is very clear in this regard: "A potential conflict with local or federal law does not necessarily render an alternative unreasonable, although such conflicts must be considered" [2b of CEQ's 40 Most Asked Questions]. Therefore, even if the assertion that SMCRA

and land ownership rights preclude a small mine alternative is correct (which, again, we are not taking a position on at this time), that does not preclude considering a small mine alternative in the SEIS. In fact, if the alternative is determined reasonable under NEPA it must be evaluated. The information provided does not appear to render a small mine alternative unreasonable in the context of NEPA.

In summary: 1) it does appear that maintaining the form of stream segments within LMU_1 would provide an environmental benefit when compared with the current proposal of mining the entire lease area; and 2) it does appear that a stream avoidance/small mine alternative is reasonable in the context of NEPA and should proceed as an alternative for detailed consideration in the SEIS. Clearly there is substantial work to be done re: the details of a reasonable small mine alternative, but moving such an alternative forward for more detailed analysis would hopefully provide the information necessary to make a more clear determination of the environmental benefits. Given the information provided so far, it would appear inappropriate not to consider small mine alternatives. Lastly, it may be that a small mine/stream avoidance alternative is the only way the project could avoid causing or contributing to significant degradation.

We look forward to continued dialogue on this important issue and thank you for the opportunity to comment.

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Jamey L. Stoddard
Office of Water and Watersheds, NEPA Compliance USEPA Region X
1200 6th Ave, Suite 900, OWW-130
Seattle, WA 98101
t. 206.553.6110
f. 205.553.0165

-----Original Message-----
From: Heer, Marcia L POA [mailto:Marcia.L.Heer@usace.army.mil]
Sent: Tuesday, February 12, 2013 3:12 PM
To: Stoodard, Jamey
Cc: McCoy, Shane POA; Morgan, Shannon R POA; Randall, Valerie
Subject: Chuitna Alternative - Mine Design to Avoid Stream Disturbance (UNCLASSIFIED)

Classification: UNCLASSIFIED
Caveats: NONE

Hi Jamey,

As I mentioned on the conference call today, the, "Mine Design to Avoid Stream Disturbance" is one of the mine alternatives we are still evaluating to determine if it will be an alternative that is carried forward for further analysis in the SEIS. We would like EPA's assistance on helping us determine if it would be an environmental benefit to retain the stream beds in place versus mining through them and then later reclaiming the stream bed.

Attached are three documents:

1) PacRim's response as to why it would not be a practicable alternative
2) A draft stream channel geomorphology baseline report
3) Information pulled from Chapter 2 defining PacRim's proposed action to reclaim streams

Any help you can provide us including assistance from your 404 folks would be much appreciated. Would it be possible to provide us with some feedback by February 28th?

Please let me know if you have any questions. Thanks, Marcia.

-----Original Message-----
From: Randall, Valerie [mailto:Valerie.Randall@aecom.com]
Sent: Tuesday, February 12, 2013 11:18 AM
To: Heer, Marcia L POA
Cc: Koontz, Dolora; Russell Moore - Home; Roberts, Peggy; McCoy, Shane POA
Subject: Chuitna Alternative - Mine Design to Avoid Stream Disturbance

Marcia,

In response to your request, a description of the alternative "Mine Design to Avoid Stream Disturbance" is attached. This alternative is pending the USACE's decision whether this alternative should be analyzed in detail in the Chuitna SEIS.

Valerie

Valerie J. Randall
Senior Program Manager

Associate Vice President

Environment

D 970.530.3363

valerie.randall@aecom.com

AECOM

1601 Prospect Parkway, Fort Collins, CO 80525

T 970.493.8878 F 970.493.0213

www.aecom.com <http://www.aecom.com/>

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